

Patent claims

1. Internal vibrator device (100), having

- an electric motor (2),

- a vibrator housing (1),

5 - an imbalance device (3, 4) situated in the vibrator housing (1) and driven by the electric motor (2) so as to be capable of rotation, and having

- a main switch (7) for switching the electric motor (2) on and off,

- the electric motor (2) being capable of being operated, in a normal operating state, with a rotational characteristic suitable for the compacting of liquid concrete, **characterized by**

10 an operating state change device (6-1, 6-2, 8, 9, 10) by which the internal vibrator device (100) is able to be operated in a liberation operating state in which the rotational characteristic of the electric motor (2) differs from the rotational characteristic in the normal operating state.

2. Internal vibrator device according to Claim 1, **characterized in that** the rotational

15 characteristic of the electric motor (2) includes at least one of the following parameters: direction of rotation, rotational speed, temporal change of the rotational speed, temporal change of the direction of rotation.

3. Internal vibrator device according to one of the preceding claims, **characterized in that**

20 by means of the operating state change device (6-1, 6-2, 8, 9, 10) the direction of rotation of the electric motor (2) is capable of being reversed in relation to the direction of rotation in the normal operating state.

4. Internal vibrator device according to one of the preceding claims, **characterized in that**

25 the operating state change device (6-1, 6-2, 8, 9, 10) has a rotational direction switch (8) by which the direction of rotation of the electric motor (2) can be predetermined.

5. Internal vibrator device according to one of the preceding claims, **characterized in that**

by means of the operating state change device (6-1, 6-2, 8, 9, 10), the internal vibrator device

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(100) is capable of being operated in an automatic change-of-rotational-direction mode, in which the direction of rotation of the electric motor (2) changes automatically.

6. Internal vibrator device according to one of the preceding claims, **characterized in that** the direction of rotation of the electric motor (2) is capable of being reversed at periodic time intervals by means of the operating state change device (6-1, 6-2, 8, 9, 10).

7. Internal vibrator device according to one of the preceding claims, **characterized in that** the operation of the electric motor (2) is capable of being interrupted at periodic time intervals by means of the operating state change device (6-1, 6-2, 8, 9, 10).

8. Internal vibrator device according to Claim 6 or 7, **characterized in that** the time duration of the periodic time intervals is able to be fixedly predetermined, or is variable.

9. Internal vibrator device according to one of the preceding claims, **characterized in that** the rotational speed of the electric motor (2) is capable of being modified or is capable of being controlled by means of the operating state change device (6-1, 6-2, 8, 9, 10).

10. Internal vibrator device according to one of the preceding claims, **characterized in that** the vibrator housing (1), the electric motor (2), and the imbalance device (3) are combined to form a vibrator device, the vibrator device being capable of being made to pass through its natural frequency through a modification of the rotational speed of the electric motor (2).

11. Method for freeing a jammed internal vibrator device (100), in which an imbalance device (3) in a vibrator housing (1) is driven by an electric motor (2), and, in a normal operating state, the electric motor (2) is operated with a rotational characteristic in order to compact liquid concrete, **characterized in that** alternatively to operation in the normal operating state, the electric motor (2) is operated in a liberation operating state in which the rotational characteristic of the electric

motor (2) differs from the rotational characteristic in the normal operating state if an operator activates the liberation operating state.

12. Method according to Claim 11, **characterized in that** the rotational characteristic of the electric motor (2) includes at least one of the following parameters: direction of rotation, rotational speed, temporal change of the rotational speed, temporal change of the direction of rotation.

13. Method according to Claim 11 or 12, **characterized by** at least one of the following steps:

- reversal of the direction of rotation of the electric motor (2),
- predetermination of the direction of rotation of the electric motor (2),
- automatic changing of the direction of rotation of the electric motor (2),
- reversal of the direction of rotation of the electric motor (2) at periodic time intervals,
- interruption of the direction of rotation of the electric motor (2) at periodic time intervals,
- modification of the rotational speed of the electric motor (2).

14. Method according to one of Claims 11 to 13, **characterized in that** a vibrator device, comprising the electric motor (2), the vibrator housing (1), and the imbalance device (3), is made to pass through its natural frequency through a modification of the rotational speed of the electric motor (2).